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A REVISED SYNOPSIS OF THE PINES 6: SUPPLEMENT TO THE SUBGENERA

Pierre Landry

50 Dussault, suite 306, Hull, Québec CANADA J8X 4G2

ABSTRACT

This chapter presents an alternate key to the subgenera, eliminating the complex morphology of the twigs, but keeping in accordance with Linnean philosophy. Basic particulars of the seven subgenera are given. The conclusion is made that plant behavior is an important part of plant systematics. The proposed division of *Pinus* into seven subgenera is presented as natural and clear-cut. Such a treatment eliminates artificial groups such as sect. *Parrya* Mayr *emend.*, by splitting them.

KEY WORDS: *Pinus*, Pinaceae, systematics

A NEW MORPHOLOGICAL KEY TO THE SUBGENERA

In the previous chapter, (Landry 1994, pp. 74-75) a traditional (Linnean) key to the subgenera was given. This key was influenced partly with the characters of the twigs. These characters are now known to be very complex. In order to simplify the key structure, we hereunder present a new key without twig characters. We have replaced features of the twigs by leaf characters.

This alternate key is more detailed, having in mind the promotion of the relations of morphology with behavior.

A. Cones spend three growth seasons to mature, as witnessed by their double concentric umbos (for *Pinus torreyana* Parry *ex* Carrière, a hand lens is useful to see them)..... 1. *Pinus* subgenus *Pinea*

A. Cones spend two growth seasons to mature, as witnessed by their simple umbos.. ..... B

B. Seeds bodies three times longer than broad..... 2. *Pinus* subgenus *Gerardia*

B. Seeds bodies less than two times longer than broad. C

C. The persistent stalks (peduncles) of the cones (and conelets) are thick (4-8 mm diam.) (very long, turning at least 60°. The conelets continue growth for over three months. Fresh seeds yellow with a faint reddish area at the apex. Leaves connate, but easily separated. ....3. *Pinus* subgenus *Tamaulipasa*

C. The stalks not persistent, or when persistent do not show the same combination of thickness, length and degree of curvature. The conelets grow for at most one month. Fresh seeds colored otherwise. Leaves not connate. ..... D
D. Umbos are dorsal (central) at least on the interior (inner) face of the middle part of the cones. ..... E
E. Leaves grouped in such a way that they form dense, long, brush-like masses. Leaves persist at least ten years. ..... 4. *Pinus* subgenus *Balfouria*
E. Leaves grouped into rather sparse masses, when examined closely. Leaves persist less than ten years. ..... 5. *Pinus* subgenus *Pinus*
D. Umbos are terminal or simili-terminal on all faces of the middle part of the cones. All the subtending apophyses long taper to a point, or are thin. ..... F
F. Umbos stout, massive, curved slightly or much, simili-terminal. ..... 6. *Pinus* subgenus *Sabinia*
F. Umbos not massive, not curved, truly terminal. ..... 7. *Pinus* subgenus *Strobus*

PARTICULARS

1. *Pinus* subgenus *Pinea* (Endlicher) Landry comprises three species:
Pinus pinea Linné, Type;
Pinus leiophylla Schiede & Deppe;
Pinus torreyana Parry *ex* Carrière.
2. *Pinus* subgenus *Gerardia* E. Murray is monotypic:
Pinus gerardiana Wallich *ex* D. Don.
3. *Pinus* subgenus *Tamaulipasa* Landry is also monotypic:
Pinus nelsonii Shaw.
4. *Pinus* subgenus *Balfouria* E. Murray comprises only the Foxtail Pines:
Pinus balfouriana Greville & Balfour is their type species.
5. *Pinus* Linné subgenus *Pinus* comprises a large number of species.
Its type species is *Pinus sylvestris* Linné.
6. *Pinus* subgenus *Sabinia* E. Murray is constituted by two species:
Pinus sabiniana Douglas *ex* D. Don, type, and
Pinus coulteri D. Don
Note: See photo (Figure 1) of a closed cone of *Pinus sabiniana*, herewith reproduced from Chaumeton & Durand (1990, species 44) (with their authorization), showing that the degree of terminality of the apophyses is similar to that of *Pinus albicaulis* Engelmann, of subgenus *Strobus* Lemmon.

7. *Pinus* subgenus *Strobus* Lemmon comprises a large number of species.
Its type is *Pinus strobus* Linné.

CONCLUSION

This chapter concludes "A Revised Synopsis of the Pines".

This revision enhances the importance of plant behavior for dividing and subdividing a genus. Four sections:

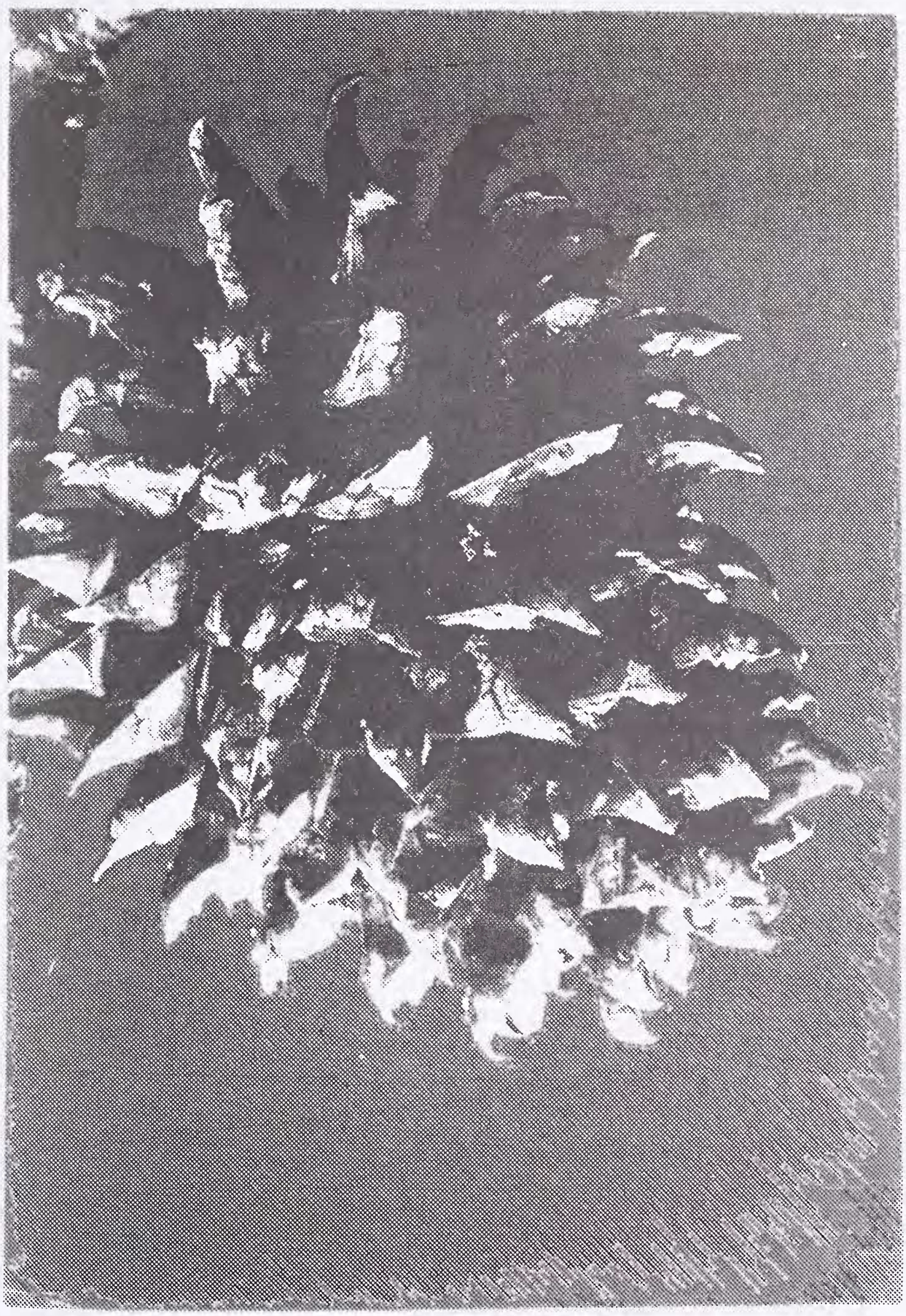

Figure 1. *Pinus sabiniana* an example of a closed cone pine.

Pinus sect. *Quinquefoliis* Duhamel Du Monceau emended Landry (Landry 1989a [chapter 1]),
Pinus sect. *Cembra* Spach (Landry 1989b [chapter 2]),
Pinus sect. *Pinea* Endlicher emended Landry (Landry 1989c [chapter 3]),
Pinus sect. *Leiophylla* Van der Burgh (Landry 1992 [chapter 4]),
were used to do so.

A new division of *Pinus* into seven subgenera is proposed. This treatment is very natural and clear-cut. It moreover eliminates artificial groupings of species (such as *Pinus* sect. *Parrya* Mayr emended), by splitting them.

LITERATURE CITED

Chaumeton, H. (director) & R. Durand (author). 1990. Les Arbres. Guide vert. Paris. 298 numbered species, 384 pp.

Landry, P. 1989a. A revised synopsis of the white pines: The subgenera of (*Pinus*, sect. *Quinquefoliis*). Phytologia 65:467-474.

Landry, P. 1989b. A revised synopsis of the pines 2: The arolla pines (*Pinus*, sect. *Cembra*). Phytologia 65:475-481.

Landry, P. 1989c. A revised synopsis of the pines 3: The Parasol Pine (*Pinus*, sect. *Pinea*). Phytologia 66:477-481.

Landry, P. 1992. A revised synopsis of the pines 4: The Chihuahua Pine (*Pinus*, section *Leiophylla*). Phytologia 72:373-377.

Landry, P. 1994. A revised synopsis of the pines 5: The subgenera of *Pinus*, and their morphology and behavior. Phytologia 76:73-79.